

species. Any 'bearded bulbul' behaving in this manner can here at once be identified as *olivaceus*.

It remains for field studies to be made of *ndussumensis* in Nigeria or elsewhere. But I suspect that White will be found to have been right in making it a race of (or, if we prefer, a member of a superspecies with) *olivaceus*. Just as the yellow-throated *barbatus* of Upper Guinea gives place to a white-throated form, so the yellow-throated *olivaceus* gives place to a white-throated form, and Chapin's observations on behaviour take on an added significance once the behaviour of *olivaceus* is known. If this is so, field identification should be possible throughout the species' range.

References:

- Chapin, J.P. 1948. *Auk* 65: 444.
 — 1953. The Birds of the Belgian Congo. Pt. 3, *Bull. Amer. Mus. Nat. Hist.* 75A.
 Hall, B.P. & Moreau, R. E. 1970. *An Atlas of Speciation in African Passerine Birds*. Brit. Mus. (Nat. Hist.): London.
 Mackworth-Praed, C. W. & Grant, C. H. B. 1973. *Birds of West Central and Western Africa*. Vol. 2. Longmans: London.
 White, C. M. N. 1956. Notes on the systematics of African bulbuls. *Bull. Brit. Orn. Cl.* 76: 158.
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Notes on sexual dimorphism and the nest of the Greenish Puffleg *Haplophaedia aureliae caucensis*

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The Greenish Puffleg *Haplophaedia aureliae* occurs in the subtropical zone from eastern Panama south to northern Bolivia (Meyer de Schauensee 1970). In the western Andes of southern Colombia *H. a. caucensis* is abundant in primary and secondary forests where it feeds and nests along trails and small rivers. It seldom leaves the dense vegetation or feeds at levels higher than 3 m (Schuchmann 1977). The hummingbirds of the Cauca Valley and the western Andes near Cali were the subject of a trapping programme in July/August 1976 and in January/February 1977. Data were collected on 10 individuals of the Greenish Puffleg trapped at km 15 on the road Cali to Buenaventura at an elevation of 2100 m.

No significant sexual differences in measurements could be found (Table 1). The oft-cited criterion of a more deeply forked tail in males (Zimmer 1951) could not be corroborated by examination of 4 specimens sexed by dissection.

TABLE 1

Mensural and weight characteristics of the Greenish Puffleg *Haplophaedia aureliae caucensis*.

Character	Sex	Mean	SD	SE	Range	No.
Wing (mm)	M	55.8	3.62	1.62	60.1-51.0	5
	F	55.6	1.49	0.67	57.0-53.0	5
Tail (mm)	M	39.6	2.42	1.42	44.0-37.0	5
	F	34.4	1.20	0.54	35.0-32.0	5
Bill (mm)	M	21.4	0.53	0.24	22.0-20.8	5
	F	21.5	0.40	0.18	22.0-21.0	5
Weight (g)	M	5.5	0.45	0.20	6.0-4.9	5
	F	4.9	0.14	0.06	5.1-4.7	5

Values of males and females were not significantly different at a probability level of 5% (Mann-Whitney U-test, Sokal & Rohlf 1969).

The only obvious sexual difference was a rufous-coloured patch on the *outer* side of the white tibial tufts in adult males (wholly lacking in females). Immature males have less pronounced tibial tufts with greyish dots. Hartert (1900) reported a similar sexual difference in the nominate race, but stated that the characteristic rufous patch of males is localized on the *inner* side of the tufts. Unfortunately, no comparable mensural characteristics are available from living specimens of *H. a. aureliae*. However, the wing length of 17 Senckenberg Museum skins are in close agreement with the range of wing measurements listed here for *H. a. caucensis*. Therefore, the position of the tibial colour patch in males is apparently the only obvious difference between the subspecies.

At the beginning of August 1976 a nest with one approximately 20-day old nestling (age based on my experience with successful breeding results of hummingbirds kept at our laboratory) was found along a trail in dense secondary forest. It was located 0.4 m above the ground in a hanging position attached to the inner side of a fern stem (Fig. 1). The cup-like nest was made entirely of moss, bound with a little cobweb, measuring 10 x 6 cm and 3.5 cm deep. The cup was lined with fine threads of plant material.

Nests of a hanging construction have previously been reported for the Tooth-billed Hummingbird *Androdon aequatorialis*, for the hermits *Glaucis*, *Threnetes*, *Phaethornis*, *Eutoxeres* by Ruschi (1965, 1973), Skutch (1964, 1972) and for the Blue-fronted Lancebill *Doryfera jobannae* by Snow & Gochfeld (1977). Based on the form of the nest, Ruschi (1965) placed the hermit group at the end of his revised classification of the Trochilidae. However, this does not seem to be a very reliable criterion on which to base a classification in that (1) the nest form of many hummingbird species is still unknown, and (2) in at least one genus, *Doryfera*, 2 species have strikingly different nests (Snow & Gochfeld 1977). It is more likely that the nest construction depends mainly on the ecological adaptations of the species, as proposed by Koepke (1972). Accordingly, the hanging nest here reported should be considered to reflect the life history and not the phylogeny of the Greenish Puffleg.

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References:

- Hartert, E. 1900. *Das Tierreich* 9. Friedl. & Sohn: Berlin.
- Koepke, M. 1972. Über die Resistenzformen der Vogelnester in einem begrenzten Gebiet des tropischen Regenwaldes in Peru. *J. Orn.* 113: 138-160.
- Meyer de Schauensee, R. 1970. *The Birds of South America*. Livingston: Pennsylvania.
- Ruschi, A. 1965. A posicao mantida no ninho pelas femeas de beija-flores durante a incubacao, e durante o aquecimento da prole. *Bolm. Mus. Biol. Prof. Mello-Leitao* 48: 1-3.
- Ruschi, A. 1973. *Beija-Flores*. Mus. Prof. Mello-Leitao. R. J.
- Schuchmann, K.-L. 1977. Geschlechtsmerkmale, Lebensraum und brutbiologische Beobachtungen von *Coeligena coeligena ferruginea* (Chapman 1917). *Senckenbergiana biol.* 58: 137-141.
- Skutch, A. F. 1964. Life histories of hermit hummingbirds. *Auk* 81: 5-25.
- Skutch, A. F. 1972. Studies of tropical American birds. *Publ. Nutt. Ornith. Club*, No. 10.
- Snow, B. K. & Gochfeld, M. 1977. Field notes on the nest of the Green-fronted Lancebill *Doryfera ludovicianae* and the Blue-fronted Lancebill *Doryfera jobannae*. *Bull. Brit. Orn. Cl.* 97(4): 121-125.
- Sokal, R. R. & Rohlf, J. F. 1969. *Biometry*. Freeman & Co: San Francisco.
- Zimmer, J. T. 1951. Studies of Peruvian birds No. 61. *Amer. Mus. Nov.* No. 1540.
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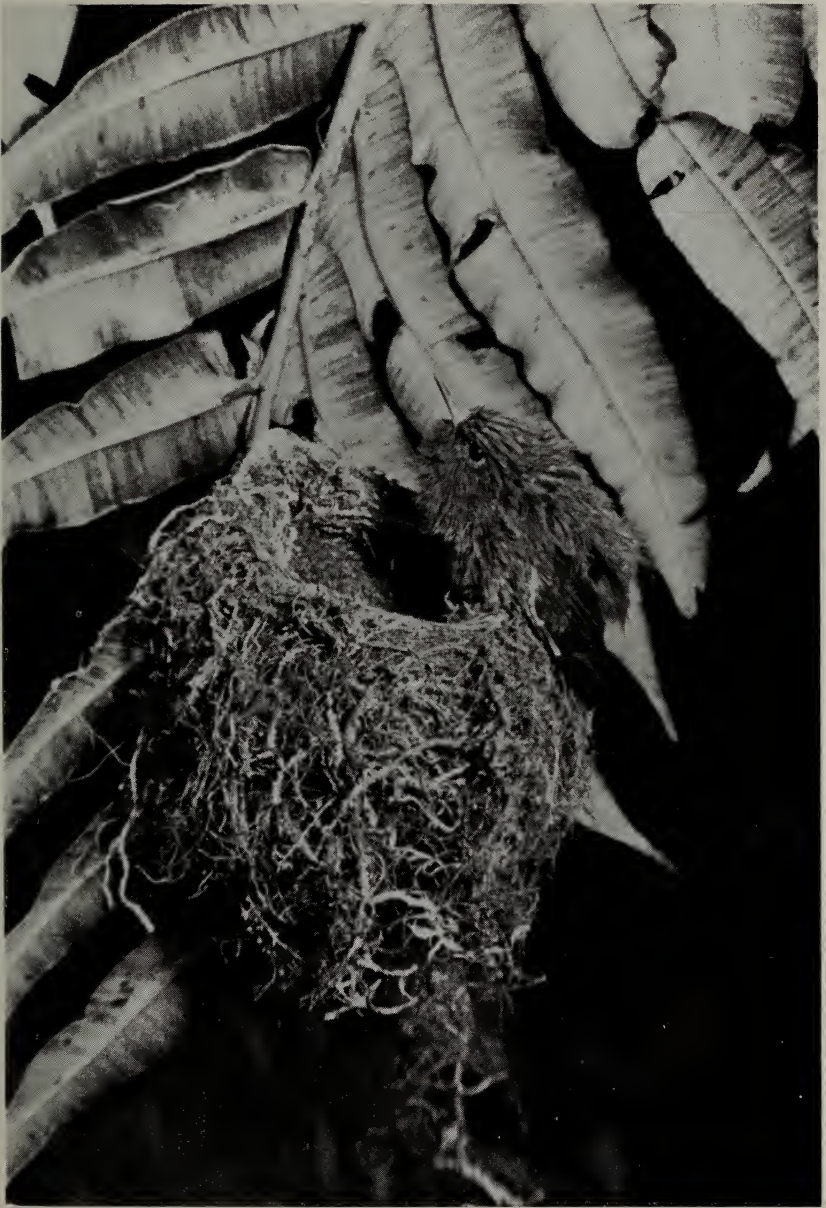


Photo: Schuchmann

Fig. 1. Nest with a 20-day old nestling of the Greenish Puffleg *Haplophaedia aureliae caucensis*.